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10/676,957	09/30/2003	Carl Myerholtz	10020421-1	8137

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EXAMINER	
CROW, ROBERT THOMAS	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,957	MYERHOLTZ ET AL.	
	Examiner	Art Unit	
	Robert T. Crow	1634	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date :
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 14 June 2006 in which the claims 1, 10, 19, and 26 were amended, no claims were canceled, and no claims were added. All of the amendments have been thoroughly reviewed and entered.

2. The previous rejections under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) not reiterated below are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are deemed moot in view of the amendments, withdrawn rejections, and new grounds for rejection necessitated by the amendments.

3. Claims 1-18 are under prosecution.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 3, 5, 7-11, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin et al (U.S. Patent Application Publication No. US 2002/0127574 A1, published 12 September 2002) in view of Rupchock et al (U.S. Patent No. 4,376,828) as evidenced by Hunt et al (U.S. Patent No. 6,329,899 B1, issued 11 December 2001).

Regarding claim 1, Mirkin et al teach a device comprising

a first electrode on a substrate (e.g., a pair of electrodes on a substrate; paragraph 0024), and

a pad of resistive material disposed on the substrate adjacent the first electrode and between the first electrode and a second electrode disposed adjacent the pad (e.g., the substrate is a TLC plate with a layer of silica [i.e., the silica is the resistive pad; paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44]), and a pair of electrodes are located on the substrate; paragraph 24),

and a probe supported on the pad (e.g., oligonucleotides are attached to the substrate between the electrodes [paragraph 0050], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

While Mirkin et al teach TLC silica plates and glass substrates (paragraph 0133), Mirkin et al do not specifically teach glass silica TLC plates.

However, Rupchock et al teach the use of glass silica TLC plates with the added advantage that the glass silica TLC plates allow wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate (column 5, lines 55-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method comprising silica TLC plates as taught by Mirkin et al with the glass silica TLC plates as taught by Rupchock et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing a wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate as explicitly taught by Rupchock et al (column 5, lines 55-60).

Regarding claim 3, the device of claim 1 is discussed above. Mirkin et al also teach the first electrode, the second electrode, and the pad are supported on the substrate (e.g., the pair of electrodes are located on the substrate [paragraph 24], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

Regarding claim 5, the device of claim 3 is discussed above. Mirkin et al also teach the first electrode and the second electrode physically contact the pad (e.g., the substrate is a TLC plate having a resistive silica layer [paragraph 0133], and the electrodes are attached to the substrate; paragraph 0211).

Regarding claim 7, the device of claim 1 is discussed above. Rupchock et al also teach the substrate comprises a non-conductive layer (e.g., the substrate is the glass of the TLC plate; column 5, lines 55-60). Mirkin et al teach the substrate supports the first electrode, the second electrode, and the pad (e.g., the substrate is a TLC plate [paragraph 0133], and the electrodes are attached to the substrate; paragraph 0211).

Regarding claim 8, the device of claim 1 is discussed above. Mirkin et al also teach the pad of resistive material is a metal oxide (e.g., silica [i.e., silicon dioxide], paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44).

Regarding claim 9, the device of claim 1 is discussed above. Mirkin et al also teach the probe is a polynucleotide (e.g., oligonucleotides are attached to the substrate between the electrodes; paragraph 0050).

Regarding claim 10, the device of claim 1 is discussed above. Mirkin et al also teach a microarray comprising a plurality of devices according to claim 1 supported on the substrate in an array format (paragraph 0024).

Regarding claim 11, the device of claim 10 is discussed above. Mirkin et al also teach each of the plurality of devices comprises a different probe (e.g., the array detects multiple different nucleic acids; paragraph 0024).

Regarding claim 15, the device of claim 10 is discussed above. Mirkin et al also teach the first electrode and the second electrode of each of the plurality of devices physically contact the pad (e.g., the substrate is a TLC plate having a resistive silica layer [paragraph 0133], and the electrodes are attached to the substrate; paragraph 0211).

Regarding claim 17, the device of claim 10 is discussed above. Rupchock et al also teach the substrate comprises a non-conductive layer (e.g., the substrate is the glass of the TLC plate; column 5, lines 55-60). Mirkin et al teach the substrate supports the first electrode, the second electrode, and the pad (e.g., the substrate is a TLC plate [paragraph 0133], and the electrodes are attached to the substrate; paragraph 0211).

Regarding claim 18, the device of claim 10 is discussed above. Mirkin et al also teach the probe of each of the plurality of devices is a polynucleotide (e.g., oligonucleotides are attached to the substrate between the electrodes; paragraph 0050).

3. Claims 1, 2, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin et al (U.S. Patent Application Publication No. US 2002/0127574 A1, published 12 September 2002) and Rupchock et al (U.S. Patent No. 4,376,828, issued 15 March 1983) in view of Eggers et al (U.S. Patent No. 5,532,128, issued 2 July 1996), and as evidenced by Hunt et al (U.S. Patent No. 6,329,899 B1, issued 11 December 2001).

Regarding claim 2, Mirkin et al teach the device comprising

a first electrode on a substrate (e.g., a pair of electrodes on a substrate; paragraph 0024), and

a pad of resistive material disposed on the substrate adjacent the first electrode and between the first electrode and a second electrode disposed adjacent the pad (e.g., the substrate is a TLC plate with a layer of silica [i.e., the silica is the resistive pad; paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44]), and a pair of electrodes are located on the substrate; paragraph 24),

and a probe supported on the pad (e.g., oligonucleotides are attached to the substrate between the electrodes [paragraph 0050], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

While Mirkin et al teach TLC silica plates and glass substrates (paragraph 0133), Mirkin et al do not specifically teach glass silica TLC plates.

However, Rupchock et al teach the use of glass silica TLC plates with the added advantage that the glass silica TLC plates allow wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate (column 5, lines 55-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method comprising silica TLC plates as taught by Mirkin et al with the glass silica TLC plates as taught by Rupchock et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing a wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate as explicitly taught by Rupchock et al (column 5, lines 55-60).

Neither Mirkin et al nor Rupchock et al teach at least some of the probe is supported on one of the electrodes.

However, Eggers et al teach a device comprising a first electrode and a pad of resistive material (Figures 2A and 2b, wherein the resistive layer is a metal linker layer; column 8, lines 38-32), a second electrode (column 4, lines 52-60 and Figures 2a and 2b) wherein at least some of a probe is supported on one of the electrodes (i.e., the electrode plate; column 4, lines 45-46 and Figure 2a) with the added advantage that the supporting of the probes on the electrode plates results in stable conjugates of the probes (column 8, lines 26-35).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the devices and microarrays comprising electrodes and resistive

pads as taught by Mirkin et al and Rupchock et al with the support of the probes on the electrodes as taught by Eggers et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in stable conjugates of the probes as explicitly taught by Eggers et al (column 8, lines 26-35).

Regarding claim 13, the device of claim 1 is discussed above. Mirkin et al also teach the microarray of claim 10 comprising a plurality of devices according to claim 1 supported on the substrate in an array format (paragraph 0024). Mirkin et al and Rupchock et al are silent with respect to a common bus of electrical communication.

However, Eggers et al teach a device comprising a first electrode and a pad of resistive material (Figures 2A and 2b, wherein the resistive layer is a metal linker layer; column 8, lines 38-32), a second electrode (column 4, lines 52-60 and Figures 2a and 2b), and further comprising a plurality of said first and second electrodes (i.e., test sites) having probes (Abstract) and the plurality of devices are in electrical communication with a common bus disposed on or in the substrate (e.g., the device is a single integrated circuit; column 3, lines 63-67) with the added advantage that incorporation into a single chip facilitates rapid detection across the array and reduces the cost of experimentation (column 12, lines 12-20).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the devices and microarrays comprising electrodes and resistive pads as taught by Mirkin et al and Rupchock et al with the common bus as taught by Eggers et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in rapid detection across the array and a reduction in the cost of experimentation as explicitly taught by Eggers et al (column 12, lines 12-20).

4. Claims 1, 4, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin et al (U.S. Patent Application Publication No. US 2002/0127574 A1, published 12 September 2002) and Rupchock et al (U.S. Patent No. 4,376,828, issued 15 March 1983) in view of Mansky et al (U.S. Patent

Application Publication No. US 2002/0032531 A1, published 14 March 2002) and as evidenced by Hunt et al (U.S. Patent No. 6,329,899 B1, issued 11 December 2001).

Regarding claims 4 and 14, Mirkin et al teach the device comprising

a first electrode on a substrate (e.g., a pair of electrodes on a substrate; paragraph 0024), and

a pad of resistive material disposed on the substrate adjacent the first electrode and between the first electrode and a second electrode disposed adjacent the pad (e.g., the substrate is a TLC plate with a silica layer [i.e., the silica is the resistive pad; paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44]), and a pair of electrodes are located on the substrate; paragraph 24),

and a probe supported on the pad (e.g., oligonucleotides are attached to the substrate between the electrodes [paragraph 0050], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

Mirkin et al also teach the microarray of claim 10 comprising a plurality of devices according to claim 1 supported on the substrate in an array format (paragraph 0024).

While Mirkin et al teach TLC silica plates and glass substrates (paragraph 0133), Mirkin et al do not specifically teach glass silica TLC plates.

However, Rupchock et al teach the use of glass silica TLC plates with the added advantage that the glass silica TLC plates allow wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate (column 5, lines 55-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method comprising silica TLC plates as taught by Mirkin et al with the glass silica TLC plates as taught by Rupchock et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing a wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate as explicitly taught by Rupchock et al (column 5, lines 55-60).

Mirkin et al and Rupchock et al are silent with respect to gaps between electrodes.

However, Mansky et al teach a sensor-based array having a plurality of pads and a plurality of pairs of electrodes adjacent each pad (paragraph 0011 and Figure 2A) wherein there is a gap between each pair of electrodes and the pads (paragraph 0037 and Figure 2A) with the added advantage that the gap prevents the electrodes (i.e., the contact pads) from being contaminated with the test materials (paragraph 0037).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the devices and microarrays comprising electrodes and resistive pads as taught by Mirkin et al and Rupchock et al with the gaps as taught by Mansky et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in preventing the electrodes from being contaminated with the test materials as explicitly taught by Mansky et al (paragraph 0037).

5. Claims 1, 6, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin et al (U.S. Patent Application Publication No. US 2002/0127574 A1, published 12 September 2002) and Rupchock et al (U.S. Patent No. 4,376,828, issued 15 March 1983) in view of Choong et al (U.S. Patent No. 6,238,909 B1, issued 29 May 2001) and as evidenced by Hunt et al (U.S. Patent No. 6,329,899 B1, issued 11 December 2001).

Regarding claims 6 and 16, Mirkin et al teach the device comprising

a first electrode on a substrate (e.g., a pair of electrodes on a substrate; paragraph 0024), and

a pad of resistive material disposed on the substrate adjacent the first electrode and between the first electrode and a second electrode disposed adjacent the pad (e.g., the substrate is a TLC plate having a silica layer [i.e., the silica is the resistive pad; paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44]), and a pair of electrodes are located on the substrate; paragraph 24),

and a probe supported on the pad (e.g., oligonucleotides are attached to the substrate between the electrodes [paragraph 0050], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

Mirkin et al also teach the microarray of claim 10 comprising a plurality of devices according to claim 1 supported on the substrate in an array format (paragraph 0024).

While Mirkin et al teach TLC silica plates and glass substrates (paragraph 0133), Mirkin et al do not specifically teach glass silica TLC plates.

However, Rupchock et al teach the use of glass silica TLC plates with the added advantage that the glass silica TLC plates allow wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate (column 5, lines 55-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method comprising silica TLC plates as taught by Mirkin et al with the glass silica TLC plates as taught by Rupchock et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing a wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate as explicitly taught by Rupchock et al (column 5, lines 55-60).

Mirkin et al and Rupchock et al are silent with respect to fissures such that the pad is segmented into a plurality of segments.

However, Choong et al teach devices having a pair of electrodes (e.g., the two structure numbered "30" in Figure 1; column 2, lines 54-61) and further comprising a pad of porous media that is segmented into a plurality of segments (e.g., the structures numbered "20" in Figure 1; column 2, lines 54-61), wherein the porous media comprises silica (column 5, lines 50-60) with the added advantage the segments prohibit unwanted reactions between the electrodes and the sample (column 2, lines 31-37).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the devices and microarrays comprising electrodes and resistive pads as taught by Mirkin et al and Rupchock et al with the segmented pad as taught by Choong et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in prohibiting unwanted reactions between the electrodes and the sample as explicitly taught by Choong et al (column 2, lines 31-37).

6. Claims 1, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin et al (U.S. Patent Application Publication No. US 2002/0127574 A1, published 12 September 2002) and Rupchock et al (U.S. Patent No. 4,376,828, issued 15 March 1983) in view of Cass et al (U.S. Patent No. 6,312,906 B1, issued 6 November 2001) and as evidenced by Hunt et al (U.S. Patent No. 6,329,899 B1, issued 11 December 2001).

Regarding claim 12, Mirkin et al teach the device comprising

a first electrode on a substrate (e.g., a pair of electrodes on a substrate; paragraph 0024), and

a pad of resistive material disposed on the substrate adjacent the first electrode and between the first electrode and a second electrode disposed adjacent the pad (e.g., the substrate is a TLC plate having a resistive silica layer [i.e., the silica is the resistive pad; paragraph 0133; Hunt et al define silica as resistive; column 24, lines 41-44]), and a pair of electrodes are located on the substrate; paragraph 24),

and a probe supported on the pad (e.g., oligonucleotides are attached to the substrate between the electrodes [paragraph 0050], wherein the substrate is a TLC plate having a resistive silica layer; paragraph 0133).

Mirkin et al also teach the microarray of claim 10 comprising a plurality of devices according to claim 1 supported on the substrate in an array format (paragraph 0024).

While Mirkin et al teach TLC silica plates and glass substrates (paragraph 0133), Mirkin et al do not specifically teach glass silica TLC plates.

However, Rupchock et al teach the use of glass silica TLC plates with the added advantage that the glass silica TLC plates allow wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate (column 5, lines 55-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was claimed to have modified the method comprising silica TLC plates as taught by Mirkin et al with the glass silica TLC plates as taught by Rupchock et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing a wide variance in the amount and particle size of the silica as well as allowing a diverse amount of other materials on the plate as explicitly taught by Rupchock et al (column 5, lines 55-60).

Mirkin et al and Rupchock et al are silent with respect to reference devices.

However, Cass et al teach nucleic acid probes, immobilization to solid phases, and electrodes (column 15, lines 41-59) and further comprising a reference device (e.g., a site having a probe immobilized thereon that hybridizes to a reference nucleic acid; column 11, line 65-column 12, line 5) with the added advantage that the reference device (i.e., the site) provides an internal real-time control to monitor the device surface and correct for device deterioration (column 12, lines 1-5).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the devices and microarrays comprising electrodes and resistive pads as taught by Mirkin et al and Rupchock et al with the reference device (i.e., a site having a probe for a reference nucleic acid) as taught by Mansky et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in providing an internal real-time control to monitor the device surface and correct for device deterioration as explicitly taught by Cass et al (column 12, lines 1-5).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection as necessitated by amendment.

Conclusion

1. No claim is allowed.

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

3. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Crow whose telephone number is (571) 272-1113. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert T. Crow
Examiner
Art Unit 1634

JULIET C. SWITZER
PRIMARY EXAMINER